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glabrous, azonate, whitish, often somewhat tinged with yellowish or reddish-brown; pores equal to or longer than the thickness of the hymenophore, the mouths punctiform, light cinnamon-brown or dark-brown; spores pale, with a flesh-colored tint, .00035-.0005 of an inch long, about .0002 of an inch broad.

Var. *typicus*. Smaller, 6-9 lines in diameter, sessile, mouths of the pores light cinnamon-brown. On *Abies nigra*. New York.

Var. *obvolutus*. (*Polyporus obvolutus*, Berk. & Cke.) Larger, 10-15 lines in diameter, sessile, mouths of the pores usually dark-brown. On *Pinus contorta*, etc., California. On *Pinus rigida*. New York.

Var. *Torreyi*, Gerard, *Ms.* Larger, 10-15 lines in diameter, stipitate, mouths of the pores dark-brown. California, (*Legit* John Torrey, M.D.)

CHARLES H. PECK.

EXPLANATION OF THE FIGURES.—Fig. 1, the stipitate variety *Torreyi*, of *Polyporus volvatus*, Pk., natural size. Fig. 2, vertical section of the same. Fig. 3, spores x 1000, seen in three positions.

§ 84. **Sexuality of *Croton monanthogynum*.**—In 1878 I collected a few seeds of *Croton monanthogynum*, which were sown in the spring of 1879. These germinated in the spring of 1880, and are now in flower. There are four plants. Two are wholly pistillate, and two wholly staminate. So far as these four plants go, it would seem that the species is dioecious and not monoecious as described in our references.

It is interesting to note that these male plants are not half the size of the females, and this accords with similar facts in hemp, spinage and others; and with the general views explained in my Salem and Troy papers (American Association for the Advancement of Science) that a greater vital (nutritive) power is associated with the production of female than of male flowers. It is not always, however, that the lower power of nutrition is evidenced throughout the whole plant as illustrated in these instances. Often it is only on the weaker branches of the same plant that the male flowers are borne—the ones the most highly vitalized resulting in female flowers.

THOMAS MEEHAN.

§ 85. **Similarity between the Characeae of America and Asia.**—Prof. Asa Gray has well shown the similarity of the floras of the eastern parts of the two great continents in relation to other groups of plants, and I now propose to show that this resemblance extends to the *Characeae*, although as yet our acquaintance with the forms of this order, both Asiatic and American, is comparatively slight.

My knowledge of Eastern *Characeae* is obtained wholly from some articles by the late Prof. A. Braun, in *Linnaea*, Vol. 17, Ser. i. *Charae Preissianae*, and in Vol. 1 of *Hooker's Journ. of Botany*, 1847, *Characeae Indiae Orientalis et insularum Maris Pacifici*. The former article treats of the Australian species; the latter of those of India, Ceylon, the Sunda, Mariana and Sandwich Islands, and is of the greater interest to us. In his preface Prof. Braun says: "It is remarkable

that several of the East Indian species agree with those of South America and the warmer parts of North America."

The first species to which I desire to call attention is

*NITELLA POLYGLOCHIN*, A. Br.—This name was proposed by the late Prof. Braun in his *Characeae* of Africa, to include *N. Roxburghii*, A. Br., *Hooker's Journ.*, 1, 292, *Chara furcata*, Roxb., *C. soluta* and *Lysimocepas Voigtii*, Griffith's posth. papers. It is the type of a series of forms which belong to the *Diarthrae-monoicae* division of the genus *Nitella*. The species of this large division possess two-celled terminals and are divided into two series—the *Mucronata* with single tips and the *Polyglochin* with multiple tips, (the Greek words from which it is derived signifying many points). *Nitella Roxburghii*, of the coast of Coromandel near Madras, answers perfectly to the specimens that I have found in this country. The plant is not known in Europe, neither is there any representative there of this *Polyglochin* series. Nothing can exceed the superb beauty of masses of this *Nitella* as brought up from deep water in Litchfield Lake, Conn., where it grows along with the roots of *Marsilia quadrifolia*, L. The antheridia are not red as in most *Characeae* but a very delicate green, with a shade of old gold; and one afternoon when I captured a mass half the size of my boat while the setting sun shone across it as it lay just beneath the surface, my enthusiasm was unbounded. It there grows from two to four or, I believe, even six feet in length. I have also gathered it in New Jersey, and have received it from the West and from Boxford, Mass., by the kindness of Mr. John Robinson, of Salem. Twenty years ago, when I sent the small-fruited variety to Prof. Braun, it was then considered distinct (*N. microcarpa* A. Br., *Characeae* of Central America). These two forms of the *Polyglochin* series differ from other allied species by their *clustered fruit*; I often find four or five sporangia in one verticil, reminding me of the *Tolypellae*. They seem to be widely distributed over the American continent.

*CHARA HYDROPITYS*, Reichenb. This species belongs to the *Haplostephanae, Bistipulatae, Diplostichae Monoicae* division of the genus *Chara*. The name was first bestowed on specimens from Surinam. In 1830 Salzmann gave the name *C. longibracteata* to some specimens from Brazil, and Prof. Braun in his *Characeae* of Central America gives Dutch Guiana, Brazil, Mexico, the South-Sea Islands, Van Dieman's Land, Australia, Southern Africa, and the East Indies as habitats for it. In *Hooker's Journ.*, 1, 297, 1847, it is reported from the coast of Coromandel, Assam, and Busna in India. It is a beautiful microscopic object; the leaves are either entirely naked or have two or three corticated nodes. The finest specimens are found in New Jersey, where it is abundant (Panther Pond, Sussex Co., and Morris Pond, Sparta). I have also gathered it in Apponaug Pond, Rhode Island. I have received the naked-leaved form (*Chara Chamæpitys*, A. Br.) or a variety nearly allied to it, from Florida (Curtiss). It is thus apparent that the species is widely diffused in this country; but no plant of this division is known in Europe. I have also a dioecious *Chara* of the same section, either a variety of *C. Dichopitys* or a closely allied new species, which was sent me by Mr. Curtiss from Key West. The fruit is much larger than in *C. Hook-*

*eri*, A. Br., and *C. Preissii*, A. Br., (both of which Prof. Braun includes under *C. Dichopitys*), and more closely approaches that of *C. Ecklonii* from Africa. Should this prove distinct, I propose to name it *C. Curtissii*.

All of these *Charae* are always gymnopodous, that is the first internode of the leaf is naked. The variations in the cortication of the other internodes are great; this naked internode is usually quite as long as any of the others, thus differing from the *Gymnopodae* of the *Diplostephanae* section. The development of the stipules serves to distinguish one from the other; besides, the stem cortication of the latter plants is *triplostichous* while that of the former is *diplostichous*.

These *Gymnopodae* of the *Diplostephanae* section of the genus *Chara* are also peculiar to America as compared with Europe, and common to America and Asia. Not a single species is known in Europe; while in America, North and South, the islands of the Pacific, Asia and Africa, there are numerous species and varieties. In the United States we find *C. sejuncta*, A. Br., two varieties; *C. gymnopus* var. *elegans*, A. Br.; var. *Humboldtii*, A. Br.; var. *trichacantha*, A. Br.; var. *Michauxii*, A. Br.; var. *conjugens*, A. Br. In the Sandwich Islands, var. *Meyenii*. In India, var. *Ceylonica*. In Africa, var. *Delilei*. In some of the West India Islands, var. *Berteroi*, besides the following allied species: *C. Javanica*, A. Br., *C. inconstans*, A. Br. Central America; *C. Crügeriana* A. Br., Trinidad; *C. Angolensis*, A. Br., and *C. Commersonii*, A. Br., Africa. It is interesting to note that this species, with its sub-species and varieties, is widely known except in Europe.

For the determination of other forms we find ourselves obliged to consult the East.

T. F. ALLEN.

§ 86. **Large Trees near New York City.**—The following trees of considerable size were measured during the month of July. The circumferences are nothing extraordinary for the respective species in their most favored localities, but are perhaps as great as any to be found in this neighborhood. In the town of Bayonne, Hudson Co., N. J., on the New Bergen Road, just south of the M. & E. Canal bridge, there is a remarkable group of *Castanea vesca*, L., var. *Americana*, Michx., one 16 feet, two over 12 feet, and seven over 10 feet in circumference at 5 feet from the ground. They have been almost entirely deprived of their bark, and all are dead or dying; but the trunks show no signs of decay.

*Populus monilifera*, Ait. A beautiful tree, 14 feet in circumference, measured at 5 feet from the ground, adorns the lawn of Philip S. Crook, Jr., at the corner of Flatbush and Caton Avenues, in the village of Flatbush, Kings Co., N. Y. Some years since it was struck by lightning, but shows little sign of injury. The owner, being a gentleman of taste, saved the tree by the application of a great metal band around the base of the lower limbs.

*Juglans nigra*, L. A specimen 12 feet in circumference, on Mr. Crook's lawn, makes a worthy fellow of the *Populus*. In the forks of its branches, at 20 feet from the ground, there has sprung up a bush of *Ribes rubrum*.